

## ABSTRACT OF THE DISCLOSURE

A packaged micromirror assembly (21, 21') is disclosed. The assembly (21, 21') includes a mirror element (41) having a mirror surface (29) that can rotate in two axes.

- 5 Magnets (53) are attached to the mirror element (41), to permit rotation of the mirror surface (29) responsive to the energizing of coil drivers (36). A sensor (63, 80) is disposed under the mirror surface (29) to detect mirror orientation. In one aspect of the invention, the sensor (63) includes a light source such as an LED (68) that imparts light through an aperture (66) at the underside of the mirror surface (29). Light detectors (65)
- 10 are arranged at varying angles, and detect relative intensity of light reflected from the underside of the mirror surface (29), from which the rotational position of the mirror (29) can be derived. According to another aspect of the invention, a conical sensor (80) with multiple insulated segmented capacitor plates are arranged under the mirror surface (29). Variations in the capacitance between the mirror (29) and the various segments of
- 15 the sensor (80) indicate the position of the mirror (29). A calibration memory (77) may be provided, to store calibration values so that the sensor (63, 80) can be nulled with the mirror (29).